



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/014,992

12/11/2001

Takeaki Shimanouchi

2500.66054

3379

7590

03/09/2006

Patrick G. Burns, Esq.
GREER, BURNS, CRAIN, LTD.
Suite 2500
300 South Wacker Dr.
Chicago, IL 60606

EXAMINER

TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

51

Office Action Summary	Application No.		Applicant(s)	
	10/014,992		SHIMANOUCHI, TAKEAKI	
	Examiner		Art Unit	
	Tamai I.E. Karl		2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 6, 11-13, 15, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4, 6, 11-13, 15, 17, and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2-4, 6, 11-13, 15, 17, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification does not support the limitation of "at least one insulating solid piece", which is not supported by the specification. There is no disclosure of the insulating piece being more than one piece.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4, 6, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (Park)(US 5747690) and Werner (US 6133059). Park teaches an electrostatic sensor and actuator with stationary column and wall electrodes 38 facing a frame of moving electrodes 36, but does not teach the insulation between

Art Unit: 2834

the electrode walls and columns. Park teaches the electrodes are used as an actuator to adjust the natural frequency of the vibrating structure. Werner teaches insulation ZR between the stationary electrodes to mechanically fix the electrodes to the substrate (col. 5, lines 50-55). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the electrostatic device of Park with the insulation between the stationary electrodes and columns to position and provide stability and stiffness to the electrodes as shown by Werner, and because removing the insulation between the electrodes requires further expenses and steps during production.

5. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (Park)(US 5747690) and Werner (US 6133059), in further view of Dyck. Park and Werner teach every aspect of the invention except the insulating material being silicon nitride. Dyck teaches silicon nitride as an insulator for electrostatic devices. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the device of Park and Werner with the insulation being silicon nitride because Dyck teaches it is a preferred insulator in electrostatic actuator and because selection of the material for intended use is within the ordinary skill in the art (see *In re Leshin*, 125 USPQ 416).

6. Claims 12, 13, and 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (Park)(US 5747690) and Werner (US 6133059), in further view of Hashimoto (US 6543285). Park and Werner teach every aspect of the invention except

the moving electrode having a thickness W and the stable electrode columns have area of $9W^2$ or a length equal to or larger than $3W$ between the datum planes/column width.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Park and Werner with the moving electrode having a thickness W and the stable electrode columns have area of $9W^2$ at the basement plane and a length equal to or larger than $3W$ between the datum planes/column width to optimized the force supplied by the electrodes as suggested by Hashimoto, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (see *In re Aller*, 105 USPQ 233).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (Park)(US 5747690) and Werner (US 6133059), in further view of Fujii et al.(Fujii)(US 6227050). Werner teaches an insulating layer 2 between the columns/electrodes and the substrate (See figures 4 and 5). Park and Werner teach every aspect of the invention except the insulating film and conductor pieces connecting the column to a wiring pattern. Fujii teaches a conductive wiring pattern 122 and an insulating film with the connector piece to the electrodes being surrounded by film (see figure 30). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Park and Werner with the insulating film and conductor pieces connecting the column to a wiring pattern of Fujii to utilize know micromachine assembly techniques.

Response to Arguments

8. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new grounds of rejection. Applicant's argument regarding the use of the drawings is not persuasive. The drawings can be used for what they reasonably show a person of ordinary skill in the art (See *In re Aslanian*, 590, F.2d 911, 200 USPQ 500 (CCPA 1979) and MPEP 2125). Park shows the space between the electrodes being greater than the width of the electrodes and the area of the column being greater than 9W, while it does not anticipate the applicant's claimed limitation, it does suggest to a person of ordinary skill in the art the spacing claimed by the applicant. Hashimoto clearly teaches the spacing of the electrodes with width and offset as being result effective variables for determining the force of the actuator (col 10, lines 30, through col. 11). The combined teachings of Park, Werner, and Hashimoto clearly suggest the applicant's claimed dimensions for the electrodes/columns and that they are result effective variables for determining the force of the actuator.

Conclusion

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2834

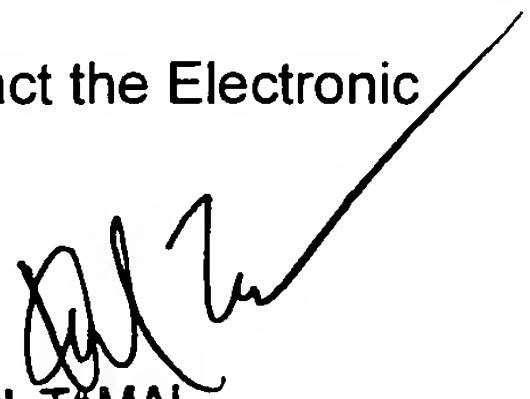
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (571) 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
March 2, 2006



KARL TAMAI
PRIMARY EXAMINER